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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

FERNALD
LOG K-2260
AUG 21 11 01 AM '97
FILE 6446.6
REPLY TO THE ATTENTION OF:

AUG 20 1997

Mr. Johnny W. Reising
United States Department of Energy
Feed Materials Production Center
P.O. Box 398705
Cincinnati, Ohio 45239-8705

SRF-5J

RE: O&M Master Plan

Dear Mr. Reising:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the United States Department of Energy's (U.S. DOE) draft Operation and Maintenance (O&M) master plan for aquifer restoration and wastewater treatment.

This document details the O&M activities necessary to operate the wastewater treatment and aquifer restoration modules in accordance with the Operable Unit 5 record of decision surface water discharge requirements.

U.S. EPA has numerous comments and found several deficiencies and inconsistencies. U.S. EPA's comments are attached.

Therefore, U.S. EPA disapproves the O&M maintenance master plan for aquifer restoration and wastewater treatment. U.S. DOE must submit responses to comments and a revised document within thirty (30) days receipt of this letter.

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5-408

Please contact me at (312) 886-0992 if you have any questions regarding this matter.

Sincerely,

James A. Saric
Remedial Project Manager
Federal Facilities Section
SFD Remedial Response Branch #2

Enclosure

cc: Tom Schneider, OEPA-SWDO
Bill Murphie, U.S. DOE-HDQ
John Bradburne, FERMCO
Terry Hagen, FERMCO
Tom Walsh, FERMCO

TECHNICAL REVIEW COMMENTS ON "DRAFT OPERATIONS AND MAINTENANCE MASTER PLAN FOR THE AQUIFER RESTORATION AND WASTEWATER TREATMENT PROJECT," FERNALD ENVIRONMENTAL MANAGEMENT PROJECT, FERNALD, OHIO

GENERAL COMMENTS

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Not Applicable (NA) Page #: NA Line #: NA
Original General Comment #: 1
Comment: The document uses flow rates to describe the capacity of units. This approach makes it difficult to evaluate the capacity of the system. The capacity of units should be presented in gallons, cubic feet, or other units of measure. DOE should revise the plan to address this issue.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 2
Comment: The document uses flow rates and average flow rates to describe flows from various sources generating wastewater. In some cases the "yearly" average flow rate is given, in other cases the "instantaneous" flow rate is used, and in still others only the flow rate is given. To clearly describe the entire system, all flow rates should be presented as annual average flow rates. Maximum and minimum flow rates can also be given if required and if known.

SPECIFIC COMMENTS

Commenting Organization: U.S. EPA Commentor: Saric
Section: 1.1 Page #: 1-1 Line #: 19-21
Original Specific Comment #: 1
Comment: The text states that "the plan also establishes the decision logic and priorities for the major flow and water treatment decision needed to maintain compliance with the FEMP's ROD-based surface water discharge limits." The text should also specify or refer to the National Pollutant Discharge Elimination System (NPDES) discharge limits.

Commenting Organization: U.S. EPA Commentor: Saric
Section: 2.1.1 Page #: 2-2 Line #: 11-13
Original Specific Comment #: 2
Comment: The text states that "groundwater remediation is expected to continue until all the constituent-specific final remediation levels (FRL) have been achieved (or, if necessary, until a technical impracticability (TI) waiver is justified in the event the FRLs cannot be achieved)." New technologies may become available that could lower the

contaminant concentrations beyond the minimums achievable by pump-and-treat systems. The text should be revised to state that alternative, best available technologies will be considered before a TI waiver is applied for.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.1.1 Page #: 2-2 Line #: 28-30
Original Specific Comment #: 3
Comment: The text states that "needed relief from discharge limits is also provided by the ROD to accommodate scheduled treatment plant maintenance." Treatment plant maintenance should be scheduled and performed during low-flow periods (that is, during dry weather) to avoid unnecessary discharge of pollutants. Typically a treatment plant is designed with an adequate number of standby units (that is, enough capacity) to allow proper treatment of wastewater during maintenance without overloading the treatment process and violating the discharge permit. DOE should make every attempt to limit bypassing of the treatment plant or discharge of untreated wastewater. The text should be revised to address this issue.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 2.1.1 Page #: 2-2 and 2-3 Line #: 44-48 and 1-9
Original Specific Comment #: 4
Comment: The text states that provisions were made to discharge groundwater from the recovery well system either to the treatment facility or directly to the discharge outfall. It is not clear whether untreated water discharged directly to the outfall will be monitored for total uranium. It is also not clear whether total uranium concentrations measured at the outfall will be used in monthly average concentration calculations or only in annual discharge mass calculations. In addition, the need to extract groundwater volumes beyond the treatment capacity is unclear. The text should be revised to clarify these issues.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.1.1.4 Page #: 3-4 Line #: 26
Original Specific Comment #: 5
Comment: The text refers to "two 100-horsepower pumps." Typically the size of a pump is given as its discharge rate in gallons per minute (gpm) or million gallons per day (mgd) at the design total discharge head, in feet, or as gauge pressure. The text should be revised accordingly.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.1.2.1 Page #: 3-5 Line #: 32
Original Specific Comment #: 6
Comment: The text refers to "a 100-horsepower pump." Original Specific Comment 5 applies here and should be addressed.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.1.2.4 Page #: 3-7 and 3-8 Line #: 32 and 1-2
Original Specific Comment #: 7
Comment: The text states that the Plant 6 Area Extraction System will have two discharge headers that will either convey contaminated groundwater to treatment or discharge untreated groundwater. It is not clear whether untreated groundwater discharged directly will be monitored for total uranium. It is also not clear whether total uranium concentrations measured at the discharge point will be used in monthly average concentration calculations or only in annual discharge mass calculations. The text should be revised to clarify these issues.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.1.4 Page #: 3-9 Line #: 23-29
Original Specific Comment #: 8
Comment: The text states that the individual groundwater extraction system module startup plans will provide specifics on the frequency of water level and water quality data collection activities during each startup. It is not clear, however, whether water level and water quality data for the entire Great Miami Aquifer will be used to evaluate the impact of each module that will be placed in service. Additionally, the text does not clearly state whether the water level and water quality data collected during each module startup will be collected at the same time as water level and water quality data collected for the entire Great Miami Aquifer. The text should be revised to clarify these issues.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.2.2.2 Page #: 3-11 and 3-12 Line #: 30-32 and 1-4
Original Specific Comment #: 9
Comment: The text states that only the flow of wastewater to the treatment facility will be monitored. Typically monitoring of flow rates and concentrations of contaminants is required as part of the operation of a wastewater treatment system. The text should be revised to address this issue.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.3.1.1 Page #: 3-14 Line #: 20-21
Original Specific Comment #: 10
Comment: The text states that the recently completed installation of multimedia filters to replace previously used multitubular filters is expected to provide an average annual treatment capacity of about 600 gpm. Average annual capacity is usually expressed in gallons, cubic feet, or other units of measure; flow rate is expressed in gallons per minute. The text should be revised accordingly.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.3.1.2 Page #: 3-15 Line #: 10-11
Original Specific Comment #: 11
Comment: The text presents the average annual treatment capacity in gallons per minute. Original Specific Comment 11 should be addressed.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.3.3 Page #: 3-16 Line #: 13
Original Specific Comment #: 12
Comment: The text presents the average annual treatment capacity in gallons per minute. Original Specific Comment 11 applies here and should be addressed.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4.2.1 Page #: 4-3 Line #: 35-36
Original Specific Comment #: 13
Comment: The text discusses "average yearly quantities of storm water; however, the related summary on Page 4-4 lists flow rates. The summary on Page 4-4 should be revised to list "average yearly quantities," not flow rates.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4.3.2 Page #: 4-7 Line #: 6
Original Specific Comment #: 14
Comment: The text states that the transfer pumps are sized at 250 gpm and that the predicted flow rates average 30 gpm. This does not appear to be possible, unless the predicted flow rate average of 30 gpm is over a day, month, or year, or unless the pumps are of a variable speed type. The text should be revised to clarify this issue.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4.3.4 Page #: 4-9 Line #: 6 and 8
Original Specific Comment #: 15
Comment: The text reads as follows: "5 gpm average flow - pumping rate is 50 gpm." It is not clear whether the 5-gpm average flow is annual, monthly, or daily. The text should be revised to clarify this issue.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4.3.5 Page #: 4-10 Line #: 19-20
Original Specific Comment #: 16
Comment: The text does not list the flow rate. If 6,000 to 10,000 gallons of water will be received in each batch, an average flow rate can be calculated for a given period of time just as is done for the other systems. The text should be revised to present an average annual flow rate as is done in Section 4.3.6.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 5.2 Page #: 5-2 Line #: 30-31
Original Specific Comment #: 17
Comment: The text states that "All additional groundwater flows will be discharged without treatment." The text should be revised to specify that all groundwater exceeding the treatment system's capacity will be discharged without treatment.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 5.8 Page #: 5-12 Line #: 2
Original Specific Comment #: 18
Comment: The sentence on Line 2 appears to be incomplete. The text should be revised to present a complete sentence.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 5.9 Page #: 5-12 Line #: 14
Original Specific Comment #: 19
Comment: The phrase "the SDF filter press" should be revised to read "the filter cake from the SDF filter press."

Commenting Organization: U.S. EPA Commentor: Saric
Figure #: 5-7 Page #: NA Line #: NA
Original Specific Comment #: 20
Comment: First, the figure implies that the injection water flow rate can decrease to below 600 gpm. It is not clear how this can occur. The injection water pump is a constant-speed, 1,000-gpm pump, and a standby pump of the same capacity is provided. If the flow rate for some reason drops below 600 gpm, the injection water pump should be taken out of service, and the standby pump should be used to supply injection water. If the injection rate is also below 600 gpm with the standby pump, clogging of the aquifer matrix surrounding the injection wells should be investigated. Second, it is not clear whether the injection wells will work properly at a flow rate of 120 gpm per well. Third, it is not clear what would cause an injection well "outage." The figure, the related text, or both should be revised to clarify these issues.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 6.2.1 Page #: 6-7 Line #: 9
Original Specific Comment #: 21
Comment: The phrase "The amperage draw of the well a various flows" should be revised to read "the amperage draw of the well's pump motor at various flows."

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 6.2.2 Page #: 6-7 Line #: 31
Original Specific Comment #: 22
Comment: The text states that the procedure for routine well maintenance will include "removal of the pitless adapter."

It is not clear why the pitless adapter is to be removed, as it is typically welded onto the well casing. The text should be revised to explain why the pitless adapter is to be removed.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Appendix A, Section 5.1 Page #: 18 Line #: 13-17
Original Specific Comment #: 23
Comment: The text states that back-surging of the chlorinated water into the gravel pack and aquifer will be done by starting a pump and pumping until water reaches the pitless adapter. It is not clear, however, which pump will be used to accomplish this. The text should be revised to clarify this matter.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Appendix A, Section 6.0 Page #: 26 Line #: 5
Original Specific Comment #: 24
Comment: The text states that sodium hypochlorite and hydrochloric acid will be used for well screen maintenance. Section 5.1 of Appendix A, however, does not include procedures for use of hydrochloric acid. Section 5.1 should be revised to include procedures for use of hydrochloric acid in well screen maintenance.